

Dynatron 900+™

OPERATOR'S MANUAL



CAUTION: Federal law restricts this device to sale by or on the order of a physician, chiropractor, physical therapist, or dentist, licensed by the law of the state in which said person practices, to use or order the use of the device.

IMPORTANT: Traction Therapy must be prescribed by a licensed practitioner following an appropriate physical examination and diagnostic analysis. Before treating a patient with the Dynatron 900⁺™ Traction System, see the “Contraindications, Warnings, and Precautions” in this manual. A copy of the manual should be kept with the device at all times.

DANGER - Explosion Hazard: Do not use in the presence of flammable gas or anesthetics.

Do not use the Traction System near X-ray or Diathermy devices. These devices may emit high frequency noise that could affect the operation of the Dynatron 900⁺™ Traction device.

INDICATIONS FOR USE

Dynatron 900⁺ Traction System

The Dynatron 900⁺ Traction system is intended for medical purposes for use in conjunction with traction accessories such as belts and harnesses to exert therapeutic pulling forces on the patient's body primarily for the cervical and lumbar areas.

Dynatron 900⁺™ Operator and Service Manual

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REV. 12-10_00

INVENTORY: 5D00040

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SECTION I

INTRODUCTION

The Dynatron 900+ Traction system is intended for medical purposes for use in conjunction with traction accessories such as belts and harnesses to exert therapeutic pulling forces on the patient's body primarily for the cervical and lumbar areas.

The Dynatron 900+ manual contains operating instructions for the Dynatron 900+ Microprocessor-controlled Traction system. A copy of this manual should be left with the device at all times.

BEFORE YOU TREAT A PATIENT

Before administering a treatment to a patient with the Dynatron 900+, familiarize yourself with all the operating instructions as well as the contraindications, warnings, and precautions for this device.

After reading the information provided in this manual consult other published sources for additional application and safety instructions for the use of Traction Therapy.



INSTALLATION AND FEATURES

UNPACKING

When you receive the unit, immediately unpack it as well as all accessories and check for possible damage, obvious or concealed. In case of damage, immediately notify the freight carrier and take any steps necessary to file a claim for the damage sustained. Do not destroy or discard the shipping carton. The carton should be reused if the device must be shipped for any reason. The carton is specially designed to protect the unit from shipping damage. Improper packaging of the unit during transport can result in damage and invalidate the warranty.

Complete the warranty registration form located at the back of the manual and return it to Dynatronics within 30 days of purchase. This is essential to insure that you are not billed for services that are covered by the warranty policy. Warranty registration must include the device serial numbers.

Read the operating instructions in this manual carefully before proceeding with a treatment.

Connect the AC power cord, which is equipped with a hospital grade, UL listed plug, to a properly grounded 110/120V 60 Hz AC (220V 60 Hz if applicable) outlet. The power cord must be firmly plugged into the Dynatron 900+ device. Do not place the cord or the device in a place where the cord could be tripped over or accidentally pulled out of its socket during a treatment.

STANDARD COMPONENTS

The following accessories are included with the Dynatron 900+:

<u>Qty</u>	<u>Part No.</u>	<u>Description</u>
1	Dynatron 900+	Dynatron 900+ Traction System with Power Cord
4	Dynatron 900+HS	Hand Screws
1	Dynatron 900+RS	Remote Stop

OPTIONAL ACCESSORIES

The following optional and replacement accessories may be purchased from Dynatronics or from your Dynatronics dealer:

Part No.	Description
Dynatron 900+EC	Extension Cord
Dynatron 900+CK	Conversion Kit

SECTION II

PHYSICAL FEATURES

Before operating the Dynatron 900+, acquaint yourself with the physical and operational aspects of the device by reviewing the instructions and illustrations within this manual. The numbered features in the diagrams located at the end of this section correspond to the numbered descriptions on the following pages. Before administering treatment(s), read the sections in this manual that provide specific instructions for performing treatments, definitions of the available options, as well as the contraindications warnings, and precautions.

SPECIFICATIONS

Traction Force	Press RESET + SP keys in combination to select one of three ranges with the following maximum traction forces: 40 lbs. (approximately 18kg, 180N) 110 lbs (approximately 50kg, 490N) 200 lbs. (approximately 91kg, 890N) Note: ± 5 lbs (2.5kg, 25N) for all settings
Traction Force Compensation	Computerized Automatic Compensation
Force Units	Pounds, Kilograms or Newtons
Hold/Rest Time	1-99 sec. independently set
Treatment Time	1-99 min. $\pm 2\%$
Traction Speed	9-35 sec./ 0-200 lbs. - variable speed motor – stepless, continuous and adjustable
Continuous Traction / Release Time	00~99 seconds, by static traction force “--” selection
Safety System	Multiple protection alarms – service / overload / min>max / remote
Power Supply	110V, 220V, 230V, 240V, (option) 50/60Hz
Current	1.2A (100V, 110V, 120V) 0.6A(220V, 230V, 240V)
Fuses	F 1.6A 250V (for 100V,110V,120V) F 0.8A 250V (for 220V,230V,240V)
Power Consumption	150VA max.
Voltage Tolerance	Max $\pm 10\%$
Leakage	Less than 100 μ A
Grounding	Three-prong hospital grade plug with cord
Ground Resistance	< 0.1 Ω
Safety Class	Class I / Type BF (IEC 60601-1)
EMC Tested	IEC 60601 / 1-2 Requirements
Classification of equipment	Class II (I Ib) as per MDD 93/42 / EEC Annex IX
Dimensions	13.4 (L) x 10.6 (W) x 10.6 (H) inches 34 (L) x 27 (W) x 27 (H) cm
Weight	30 lb. (13.6 kg)

*Designs and specifications are subject to change without notice

DESCRIPTION OF PHYSICAL FEATURES

1. ON/OFF TOGGLE SWITCH

The On/Off Toggle Switch is located on the left-side of the lower front panel. When the toggle switch is in the “1” (on) position, the LED above the Reset Key is illuminated green as well as other display windows and indicators on the device faceplate.

2. TIME SELECTOR ARROWS

Located in the upper right-hand corner of the faceplate, these Time Selector Arrow Keys are used to set the treatment time within a range of 1-99 minutes. As the keys are pressed, the time appears in the Time Display Window and will count down during treatment.

3. START KEY

When the Start Key is pressed, treatment begins. The time automatically begins to count down and the green LED above the Start Key is illuminated. When the treatment is complete, a tone will sound signaling that the treatment is finished and the green LED will go off.

4. RESET KEY

The Reset Key has four functions: 1. Press the Reset Key before beginning a new treatment to clear all previous settings. 2. If treatment is interrupted, immediately push the Reset Key to release the tension on the rope and end the treatment. 3. Used in combination with the SP Key to select Max Force. 4. Concludes treatment and releases all tension from the traction rope.

5. TIME DISPLAY WINDOW

Located in the upper right corner of the device faceplate, the digital readout in the Time Display Window counts down the preset treatment time. Treatment time is set by using the Time Selector Arrow Keys below the Time Display Window.

6. REMOTE STOP JACK

The Remote Stop is controlled by the patient and can be used to terminate the treatment at any time. The Remote Stop should be plugged into the device prior to turning on the device.

7. SP KEY

Located toward the left side of the control panel, the SP Key toggles through four settings that control the volume of the audible signals: Mute/Low/Mid/Max.

8. “N / KG / LB” KEY

This key is located toward the right side of the control panel. It allows the user to control the unit of measurement in which the Traction Force will be displayed: N=Newtons; kg.= kilograms; lb.= pounds. As the key is pressed, the green LED next to the selection will be illuminated indicating that the selection has been activated.

9. SP PLUS RESET KEY

While holding down the Reset Key, use the SP Key to select the Max Force range. The green LED next to each selection will be illuminated when the selection is activated.

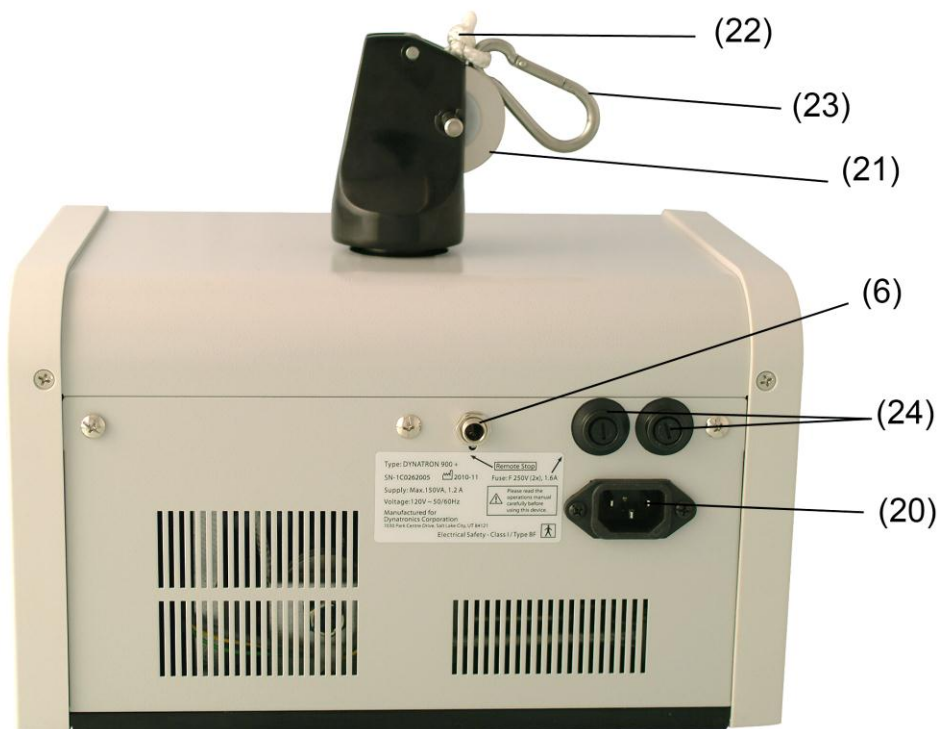
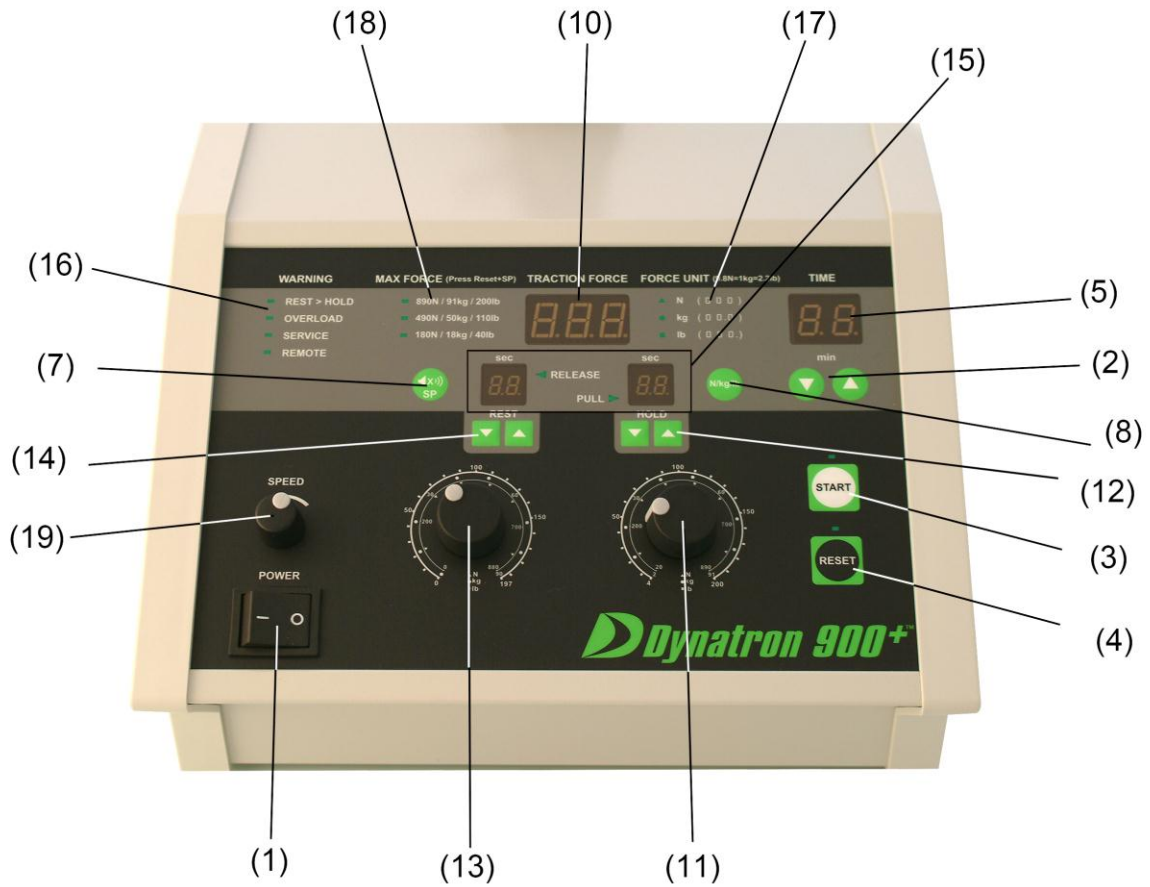
- 890N / 91kg / 200lb
- 490N / 50kg / 110lb
- 180N / 18kg / 40lb

10. TRACTION FORCE DISPLAY WINDOW (POUNDS/KILOGRAMS/NEWTONS)

The LEDs in the Traction Force Display Window indicate the pounds, kilograms or Newtons of traction force during both "Release" and "Hold" cycles. The display counts up as the traction system releases or pulls. The target number will remain illuminated during the “Hold” or “Rest” time cycles. The active cycle (Hold or Rest) is indicated by the illuminated arrow pointing toward the “Hold” or “Rest” display windows located in the center of the control panel.

When selecting Hold or Rest forces using the force selection knobs, the Traction Force Display Window will briefly show the Hold or Rest force dialed. The displayed selection will hold for two seconds before the display automatically returns to “000.” In “Reset” mode, the digital display reads “000.” Traction forces may be changed during treatment; however the Start Key must be pressed after each change. Changes made during treatment, will not take effect until the next new Hold/Rest cycle begins.

DYNATRON 900+ NUMBERED FEATURES



11. HOLD FORCE CONTROL KNOB

Hold Force is set by using the circular knob located on the right-hand side of the device. There are three numbered circles surrounding the knob. The inside circle indicates force in Newtons, the middle circle indicates kilograms, while the outside circle indicates force in pounds. Force is selected by aligning the gray dot on top of the knob with the desired Newtons/ kilograms/pounds of force desired. Hold Force ranges from 4 – 200 lb; 2 – 91 kg; or 20 – 890N. The selected force will be displayed in the Traction Force Display Window as the knob is turned.

12. HOLD FORCE TIMER

Located immediately above the “Hold Force” knob, Hold Time is selected by pressing the arrow selector keys under the Hold display window. This display indicates the amount of time the rope tension will Hold after reaching the Hold Force set for the current treatment. Hold Force Time ranges from 1-99 seconds and may be adjusted in 1 second intervals. When a static traction treatment is desired, press the down the arrow key until “- -” appears in the Hold Display Window.

13. REST CONTROL KNOB

Rest Force is set by using the circular knob located on the left-hand side of the device. There are three numbered circles surrounding the knob. The inside circle indicates force in Newtons, the middle circle indicates kilograms, while the outside line indicates force in pounds. Force is selected by aligning the gray dot on top of the knob with the desired Newton/ kilograms/pounds of force desired. Hold Force ranges from 0 – 197 lb.; 0 – 90 kg; 0 – 890N. The selection will be displayed in the Traction Force Display Window as the knob is turned.

14. REST FORCE TIMER

Located immediately above the “Rest Force” knob, Rest Time is selected by pressing the arrow selector keys under the Rest Display Window. This display indicates the amount of time the rope tension will Rest following the release phase of the traction cycle. Rest force time ranges from 1-99 seconds and may be adjusted in 1 second intervals. When a static traction treatment is desired, press the down the Rest Force Arrow Key until “- -” appears in the Rest Display Window.

15. PERFORMANCE INDICATION LAMPS (STATUS INDICATORS)

The Performance Indication Lamps are located directly in the center of the control. During a traction treatment, the Performance Indication Lamps or status indicators supply the following

PULL:	Rope tension is increasing from "Rest" to "Hold."
HOLD:	Tension is holding at set Hold Force. Indicator flashes as Hold Force Timer counts down.
RELEASE:	Tension decreasing from "Hold" to "Rest."
REST:	Tension is holding at set Rest Force. Indicator flashes as Rest Force Timer counts down.

16. WARNING INDICATION LEDS

The Warning Indication LEDs are located at the top left-hand corner of the device faceplate and are listed under the heading “WARNING.” During a traction treatment, the green Warning LEDs will become illuminated according to adverse operational conditions affecting the device. Following is a list of the Warning Indicators and their functional warnings:

SERVICE:	System is malfunctioning - call for Service (800) 874-6251
MIN. > MAX:	"Rest" dial setting is greater than "Hold" dial setting
OVERLOAD:	Hold force is 8 kg or more greater than the force selected
REMOTE:	Illuminated when patient presses the Remote Stop Key

17. POUND/KILOGRAM/NEWTON KEY

Using the LB/KG/N key located under Force Unit on the front of the faceplate, the user may choose pounds, kilograms, or Newtons to be displayed on the Traction Force Display. As the key is pressed, the LED next to the active selection will be illuminated.

18. MAX FORCE LEDS

Under the Max Force heading, three maximum force selections are listed. Selection is made by holding down the "Rest" Key while pressing the SP Key. The LED next to each Max Force selection becomes illuminated when the selection is active.

- 890N / 91kg / 200lb
- 490N / 50kg / 110lb
- 180N / 18kg / 40lb

19. SPEED CONTROL KNOB

This knob labeled "Speed" controls the variable "Pull" and "Release" speed of the rope. The rope speed is increased by turning the knob to the right and reduced by turning the knob to the left. Rope Speed can be adjusted on a gradient scale of slow to fast (8 lbs.-17 lbs. per second).

20. POWER SOCKET

Plug the Dynatron 900+ power cord firmly into the power socket located on the back of the device prior to plugging the device into a wall socket. Do not place the cord or the device in a place where the cord could be tripped over or accidentally pulled out of its socket during a treatment.

21. TRACTION PULLEY

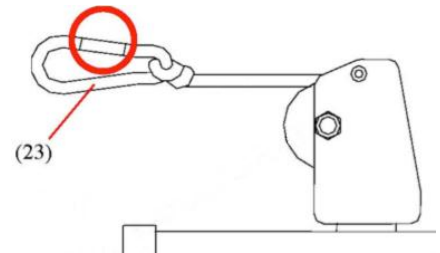
The Traction Pulley can be rotated to any desired position.

22. TRACTION CORD

The traction rope is connected to the spring loaded clip by a knot.

23. SPRING LOADED TRACTION CLIP

The traction Clip is used to attach the traction belts to the traction device. When operating the device, the traction clip should be situated with the clip opening facing up as illustrated in the diagram.



24. FUSES

The Dynatron 900+ requires two fuses:

F 1.6A 250V (100V, 110V, 120V)

F 0.8A 250V (220V, 230V, 240V)

SAFETY SYSTEMS

Warning Alarms will sound under the following conditions:

1. Overload (Hold Force setting is greater than maximum value of the selected range).
2. Traction force exceeds preset force by approximately 8 lbs.
3. Remote Switch is pressed
4. Rest Force setting is equal or greater than the Pull Force setting.
5. Device malfunctions
6. Traction force exceeds 200±4lb. (91±2kg /890±20N)

SECTION III

OPERATING INSTRUCTIONS

This section contains detailed procedures for the operation of the Dynatron 900+ Traction Unit. These procedures are designed to familiarize the user with the operation and function of the device. Read this section thoroughly along with all contraindications, warnings, and precautions before operating this device.

WARNING

- **Thoracic, Pelvic and Cervical harnesses must be securely in place before traction treatment begins.**
- **Always STOP a treatment before removing, or adjusting harnesses.**
- **Check the traction cable for knots, twisting, fraying and damage of any kind.**
- **Never use worn or damaged harnesses as these may result in injury to the patient or lessen the effectiveness of a treatment.**
- **See the contraindications, warnings, and precautions in this manual before administering a treatment to a patient.**
- **The patient controlled REMOTE EMERGENCY STOP cable must be inserted into the front of the Dynatron 900+ device before powering-on the device**

Prior to treatment, prepare all belts and harnesses according to manufactures directions and carefully position the patient.

CERVICAL, THORACIC AND PELVIC HARNESSSES. The cervical, thoracic and pelvic harnesses must be properly fitted according to manufacturers' instructions. Belts should be securely tightened without creating discomfort. Harnesses secure the patient to the traction device while supporting the musculature, thus allowing for the proper application of the distraction forces.

- ☐ **POSITIONING THE PATIENT AND TABLE.** As the effect and effectiveness of traction are related to the position of the body as well as the force and duration of pull, make sure that the positioning of the patient and the table are according to prescribed protocols. The use of pillows or bolsters under the arms, head, knees, or ankles may be necessary to achieve proper positioning. See published literature.

QUICK SETUP INSTRUCTIONS

1. Prepare the patient for the traction treatment. Make sure all belts and harnesses are securely attached.
2. Plug in the remote stop cable and hand it to the patient.
3. Turn on the Dynatron 900+ device.
4. Set Treatment Time: (1-99 min.)
5. Set Hold Force Timer: (1-99 sec.)
6. Set Rest Force Timer: (1-99 sec.)
7. Set Hold Force: (4 – 200 lbs. or 2 - 91 kg.)
8. Set Rest Force: (0 – 197 lbs. or 0 - 90 kg.) Must be set lower than Hold Force value.
9. Adjust Speed: Range: Slow to Fast
10. Press START

DETAILED TREATMENT SETUP

1. According to manufactures' instructions, prepare the patient for treatment. Make sure all belts and harnesses are securely attached.
2. The **Remote Stop** cable must be plugged into the console before the device is turned "on." Connect the Remote Stop plug to the Remote Jack located in the center of the rear panel and hand the Remote Stop switch to the patient.
3. **Turn the Power Switch to "1" (on).** The On/Off Toggle switch is located on the lower left-side of the control panel. When the toggle switch is in the "1" (on) position, the LED above the Reset Key is illuminated green. The digital display windows are also illuminated green indicating that there is power to the device.
4. **Set Treatment Time: (1-99 min.)** Using the up/down arrow keys located immediately under the Time Display Window, set the treatment time. The treatment time will appear in the Time Display Window and the display will count down during a treatment. Treatment time ranges from 1-99 minutes and may be adjusted in 1 minute intervals.

<p>Note: Traction forces may be changed during treatment; however the Start Key must be pressed after each change. Changes made during the treatment, will not take effect until the next new Hold/Rest cycle begins.</p>

4. **Set Hold Force Time (1-99 sec.).** Located directly above the "Hold Force" knob, Hold Time is selected by pressing the up/down arrow keys below the Hold Display. This selection determines the amount of time the traction tension will hold after reaching the set Hold Force. Hold Force Time ranges from 1 - 99 seconds and may be adjusted in 1 second intervals. When a Static traction treatment is desired, set the Hold Time at "- -".
5. **Set Rest Force Time (1-99 sec.).** Located directly above the "Rest Force" knob, Rest Time is selected by pressing the up/down arrow keys below the Rest Display. This timer determines the amount of time the Rest tension will hold after reaching the preset Rest Force. Rest Force Time ranges from 0 - 99 seconds and may be adjusted in 1 second intervals. When a static traction treatment is desired, set the Hold Time at "- -". The Rest Force setting is ignored.
6. **Set Hold Force (4 – 200 lbs.; 2 – 91 kg; or 20 – 890N).** Hold Force is set by using the circular knob located on the right-hand side of the control panel. Three numbered circles surround the knob, the inside circle indicates force in Netwons, the middle circle in kilograms, while the outside circle indicates force in pounds. Force is selected by aligning the gray dot on top of the knob with the desired/ pounds/kilograms of force indicated on the circles. Hold force ranges from 4 – 200 lbs.; 2 – 91 kg; or 20 – 890N.
7. **Set Rest Force (0 – 197 lb.; 0 – 90 kg; 0 – 890N).** Rest force is set by using the circular knob located on the left-hand side of the control panel. Three numbered circles surround the knob, the inside circle indicates force in Netwons, the middle circle in kilograms, while the outside circle indicates force in pounds. Rest Force is selected by aligning the gray dot on top of the knob with the desired/ pounds/kilograms of force indicated on the circles. Rest force ranges from 0 – 197 lb.; 0 – 90 kg; 0 – 890N.
9. **Adjust Speed (8 lbs.-17 lbs. per second).** Adjust the variable "Pull" and "Release" speed of the rope by using the Speed knob located on the left side of the control panel. The rope speed is increased by turning the knob to the right and reduced by turning the knob to the left. Rope Speed can be adjusted between slow and fast (8 lbs. -17 lbs. per second).
10. **Press Start.** Press Start and the treatment begins. If a beeper sounds when Start is pressed at the beginning of a treatment, be sure that the "Rest" Force is set lower than the "Hold" Force. Press the Reset Key to reset the alarm and indicator lamps.

11. At the end of a treatment, the 900+ unit will beep (unless muted). The LED above the Rest key will flash, the Treatment Time Display Window will flash “00” and the tension on the rope will ramp down to 4 lbs. Press the Reset Key to conclude the treatment and release all tension from the rope. The 900+ is now ready for program changes or to setup a new treatment.

ADDITIONAL TRACTION MODES – QUICK SETUP INSTRUCTIONS

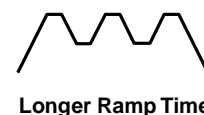
STATIC INSTRUCTIONS

1. Prepare the patient for the traction treatment. Make sure all belts and harnesses are securely attached.
2. Plug in the remote stop cable and hand it to the patient.
3. Turn on the Dynatron 900+ device.
4. Set Treatment Time: 1-99 min.
5. Set Hold Force Timer: “- -” sec.
6. Set Hold Force: 2 - 91 kg. or 4 – 200 lbs.
7. Adjust Speed Fast
8. Press Start



INTERMITTENT INSTRUCTIONS

1. Prepare the patient for the traction treatment. Make sure all belts and harnesses are securely attached.
2. Plug in the remote stop cable and hand it to the patient.
3. Turn on the Dynatron 900+ device.
4. Set Treatment Time: 1-99 min.
5. Set Hold Force Timer: 1-99 sec.
6. Set Rest Force Timer: 1-99 sec.
7. Set Hold Force: 4 – 200 lbs. or 2 - 91 kg.
8. Set Rest Force: 0 – 197 lbs. or 0 - 90 kg. Must be set lower than Hold Force value.
9. Adjust Speed
Fast: Intermittent Cycle
Slower: Intermittent Cycle with Longer Ramp Time
10. Press START



HARMONIC INSTRUCTIONS

1. Prepare the patient for the traction treatment.
Make sure all belts and harnesses are securely attached.
2. Plug in the remote stop cable and hand it to the patient.
3. Turn on the Dynatron 900+ device.
4. Set Treatment Time: (1-99 min.)
5. Set Hold Force Timer: (01 sec.)
6. Set Rest Force Timer: (00 sec.)
7. Set Hold Force: (4 – 200 lbs. or 2 - 91 kg.)
8. Set Rest Force: (0 – 197 lbs. or 0 - 90 kg.) Must be set lower than Hold Force value.
9. Adjust Speed Slow (minimum setting)
10. Press START



STEPLESS PROGRESSIVE

1. Prepare the patient for the traction treatment. Make sure all belts and harnesses are securely attached.
2. Plug in the remote stop cable and hand it to the patient.
3. Turn on the Dynatron 900+ device.
4. Set Treatment Time: 1-99 min.
5. Set Hold Force Timer: 1-99 sec.
11. Set Rest Force Timer: 1-99 sec.
12. Set Hold Force: 4 – 200 lbs. or 2 - 91 kg.
13. Set Rest Force: 0 – 197 lbs. or 0 - 90 kg. Must be set lower than Hold Force value.
14. Adjust Speed Slow (minimum setting)
15. Press START



Intermittent Cycle



Longer Ramp Time

NOTE: AS A SAFETY PRECAUTION, IT IS NECESSARY TO RESET BOTH THE HOLD AND REST FORCES WHENEVER THE POWER SWITCH IS ARE TURNED ON. FAILURE TO DO SO WILL RENDER THE DEVICE INOPERABLE.

SPECIAL USAGE PROCEDURES

ADJUST HOLD/REST FORCES AFTER A TREATMENT IS IN PROGRESS

1. Once the initial Hold Force is reached during a treatment, set the Hold or Rest Force parameters to the new values.
2. Press the Start Key. The change will not take place until the next full Hold/Rest cycle.
3. In static mode, the Dynatron 900+ device will not accept any change until the Reset Key is pressed.

SECTION IV

CONTRAINDICATIONS, WARNINGS, AND PRECAUTIONS RELATED TO MECHANICAL SPINAL DECOMPRESSION

Traction Therapy must be prescribed by a licensed practitioner following an appropriate physical examination and diagnostic analysis.

The Dynatron 900+ Traction system is intended for medical purposes for use in conjunction with traction accessories such as belts and harnesses to exert therapeutic pulling forces on the patient's body primarily for the cervical and lumbar areas.

CAUTION: Cervical Traction should never be attempted in traumatic conditions that have not been evaluated to rule out a fracture of dislocation.

CONTRAINDICATIONS

- Pregnancy
- Primary or Metastatic Neoplasm in the spine
- Vertebral or Spinal Fractures or Instability
- Osteoporosis
- Prior Lumbar Fusion with Fixation Hardware
- Cauda Equina Syndrome
- Spondylolisthesis
- Spondylolysis
- Congenital Abnormalities of the Spine
- Patient under 15 years of age
- Spinal Cord Compression
- Rheumatoid Arthritis
- Spinal Meningitis or Arachnoiditis
- Advanced disc degeneration or advanced herniation
- Inflammatory, infectious, or neoplastic conditions
- Acute joint and/or soft tissue injury
- Any condition that grows worse after treatment
- The presence of vascular compromise

PRECAUTIONS & WARNINGS

- Ligamentous Strains and Joint Hypermobility.
- Patient's with "Traction Anxiety" causing muscles to become over tense and/or cardiac/respiratory insufficiencies.
- Discontinue treatment immediately if there is an increase in symptoms or pain or if paresthesia (prickling or tingling that has no objective cause) is experienced.
- Avoid improper extension during cervical traction. Rupture of the cervical esophagus may occur.
- Excessive duration and/or traction weight can cause thrombosis of the internal jugular vein.
- Abdominal Pressure. Properly administered mechanical traction requires the use of belts and harnesses/corsets. While such devices can be comfortably applied, they do produce pressure. Patients who have conditions such as hiatal hernias, uncontrolled hypertension, aortic aneurysm, or even severe hemorrhoids may not tolerate traction treatments.
- Joint Hypermobility. This concept relates to RA and Pregnancy which have already been listed under Contraindications, however, it is repeated here to make the point that when the examination of the patient identifies hypermobile spinal segments, these segments must either be protected from the traction force or traction should not be applied.

SECTION V

TECHNICAL INFORMATION

SUGGESTED MAINTENANCE SCHEDULE

SERVICE TO BE PERFORMED BY A TECHNICIAN

ANNUAL CALIBRATION

It is recommended that the Dynatron 900+ device be sent to the manufacturer for annual calibration.

MAINTENANCE PERFORMED BY USER

1. Inspect the Dynatron 900+ ropes/cables and connectors daily for wear and damage. Replace accessories as needed.
2. If the device is dropped, or if damage is sustained due to lightning, severe power surge, submersion in water, or other incident that could cause damage to electronic components, the device must be examined by a Dynatronics' technician before being returned to clinical use.
3. Inspect device air vents periodically to ensure air flow is not blocked. An ordinary household vacuum hose may be used to clean dust from the external air vents.
1. Immediately report any device malfunction to Dynatronics' Customer Service Department (800) 874-6251.

CAUTION

- Excluding rope and fuse replacement, refer servicing to qualified service personnel.
- Clean only with a damp cloth. Cleaning the device with water or spraying liquid cleaning agents on the device may cause damage to the unit and may endanger the life of the patient.
- The unit may only be opened and serviced by authorized personnel.
- Unplug the unit before opening.
- Dynatronics recommends that the Dynatron 900+ be calibrated annually to ensure the unit is working at peak performance.
- When disposing of a Dynatron 900+ unit, comply with the laws and procedures required in your area according to directives in ISO-14000.
- Do not substitute unauthorized parts.

WARNING

- Never clean the device while it is attached to a patient.
- Keep all food and liquids away from the device and its accessories
- If the device malfunctions, immediately press the Reset Key to release rope tension. When the tension is completely released, turn off the device.

<p>WARNING: For continued protection against risk of fire, replace fuses only with type: F 1.6A 250V (100V, 110V, 120V) ; F 0.8A 250V (220V, 230V, 240V)</p>

NOTE: BEFORE sending a device to Dynatronics for service, you must **FIRST** obtain a return authorization number. Call your Dynatronics' Representative or Dealer for assistance. If unable to reach your Dynatronics' Representative or Dealer, call Dynatronics' Customer Service Department at (800) 874-6251 and discuss any problems or required service to save time and ensure the machine is returned to you as quickly as possible. See Section on the following page "Returning a Unit for Repair."

RETURNING A UNIT FOR REPAIR

If it becomes necessary to return the Dynatron 900+ for repair, contact your Dynatronics' Dealer for assistance. If unable to contact your Dynatronics' Dealer, call Dynatronics' Customer Service (800) 874-6251. The following information must be supplied when calling Dynatronics' Customer Service to obtain a return Service Order Number (SVO):

1. User name and address
2. User phone number
3. Serial number of the device
4. A description of the problem with the device

After receiving the Service Order Number (SVO), the number should be clearly written on the outside of the shipping container.

PACKAGING AND SHIPPING

All defective or broken parts should be shipped back to Dynatronics in the original shipping container. These containers are designed to withstand the punishment of shipping. If the original containers are not usable, find containers that are similar in protection so damage in shipping will be prevented. The person or company sending the unit to Dynatronics is responsible for any shipping damage resulting from a poorly packaged part or device.

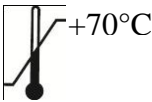
CARE AND CLEANING INSTRUCTIONS

- Clean the outer surface of the Dynatron 900+ device with a slightly damp or lightly moistened cloth. Mild household cleaners work well on the frame. Do not spray the solution directly on the unit. First moisten the cloth and then wipe the unit off. Solvents, caustic solutions, or harsh or abrasive cleaners must never be used.
- Avoid stretching electrical cords to full length, bending sharply or wrapping tightly. Undue stress on can damage connections.
- Keep all food and liquids away from the device and its accessories; spills can cause costly damage to the device and repairs for this type of damage are not covered by the warranty.

ENVIRONMENTAL CONDITIONS

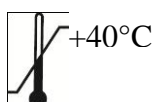
Transport and Storage

This equipment, while packed for transport or storage, should not be exposed to environmental conditions outside the following ranges:

- a) an ambient temperature range of -40°C  +70°C
- b) a relative humidity range of 10% to 100% including condensation
- c) an atmospheric pressure range of 500 hPa to 1060 hPa

Operation

This equipment is designed to operate in normal use under the following environmental conditions:

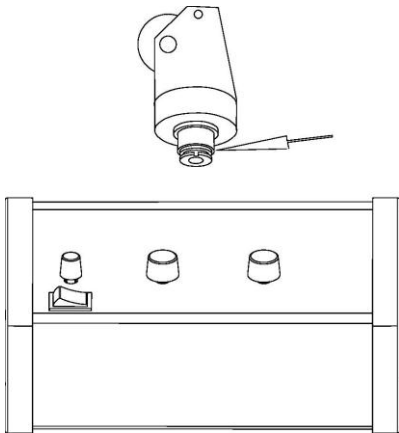
- a) an ambient temperature range of +10°C  +40°C
- b) a relative humidity range of 30% to 75% including condensation
- c) an atmospheric pressure range of 700 hPa to 1060 hPa

SECTION VI

ASSEMBLY AND MAINTENANCE

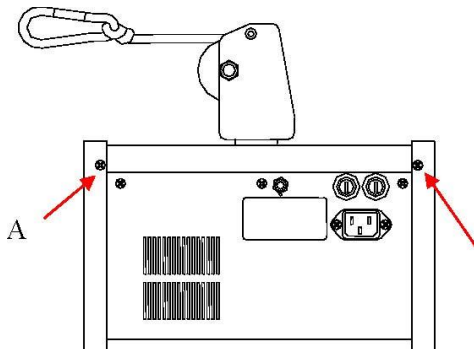
PULLEY HEAD

Whenever the Pulley Head is replaced or removed from the device, turn the pulley head to the left until the breach points are aligned and the pulley easily slips from the enclosure. Do not force.

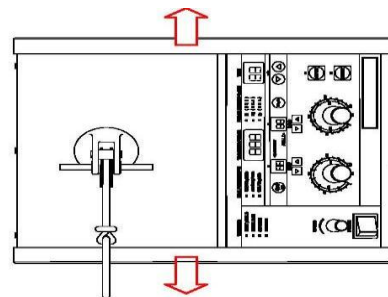
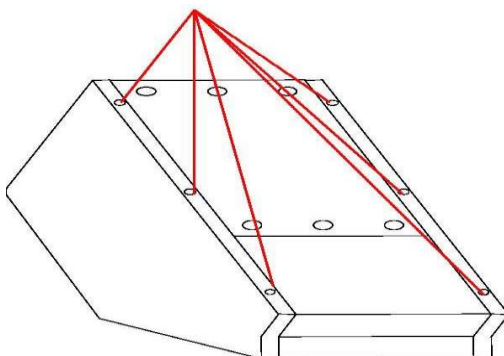


REMOVING THE CHASSIS

1. Remove the two screws from the back panel of the chassis (A).

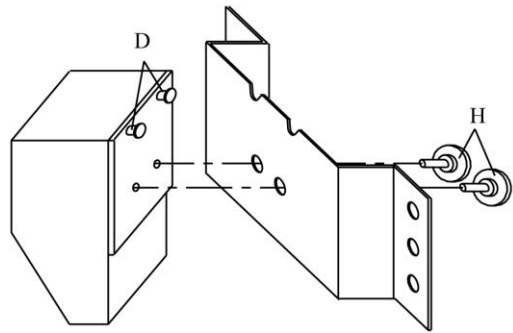


2. Remove the bottom plate and side panels will fall free.



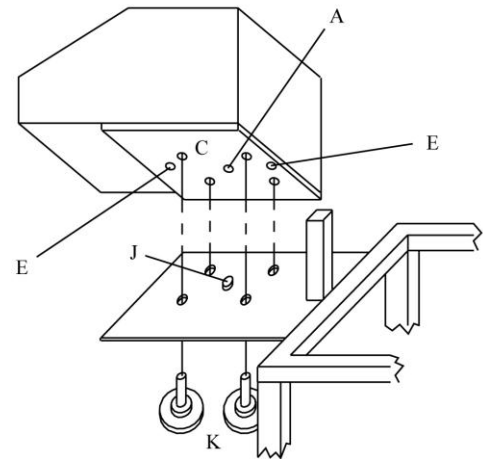
DYNATRON 900+ WALL INSTALLATION

1. Align 2 special mounting screws in screw holes (D).
2. Align with device with the mounting bracket.
3. Attach the device with hand-screws (E).



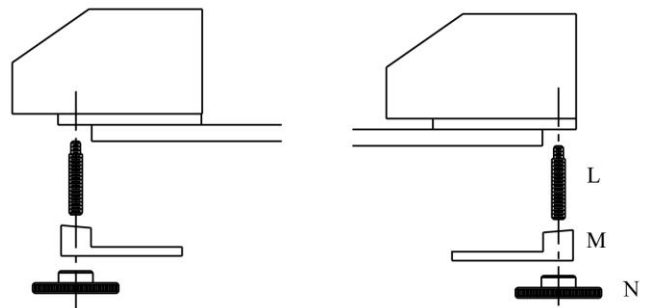
DYNATRON 900+ PLATFORM INSTALLATION

1. Align hole A on the machine with pin F on the installation plate.
2. Turn the machine to the desired orientation.
3. Tighten the 4 hand-screws (E).



DYNATRON 900+ TABLE INSTALLATION

1. Tighten stud to two screw holes (G).
2. Attach universal mounting bracket to stud.
3. Tighten the knobs

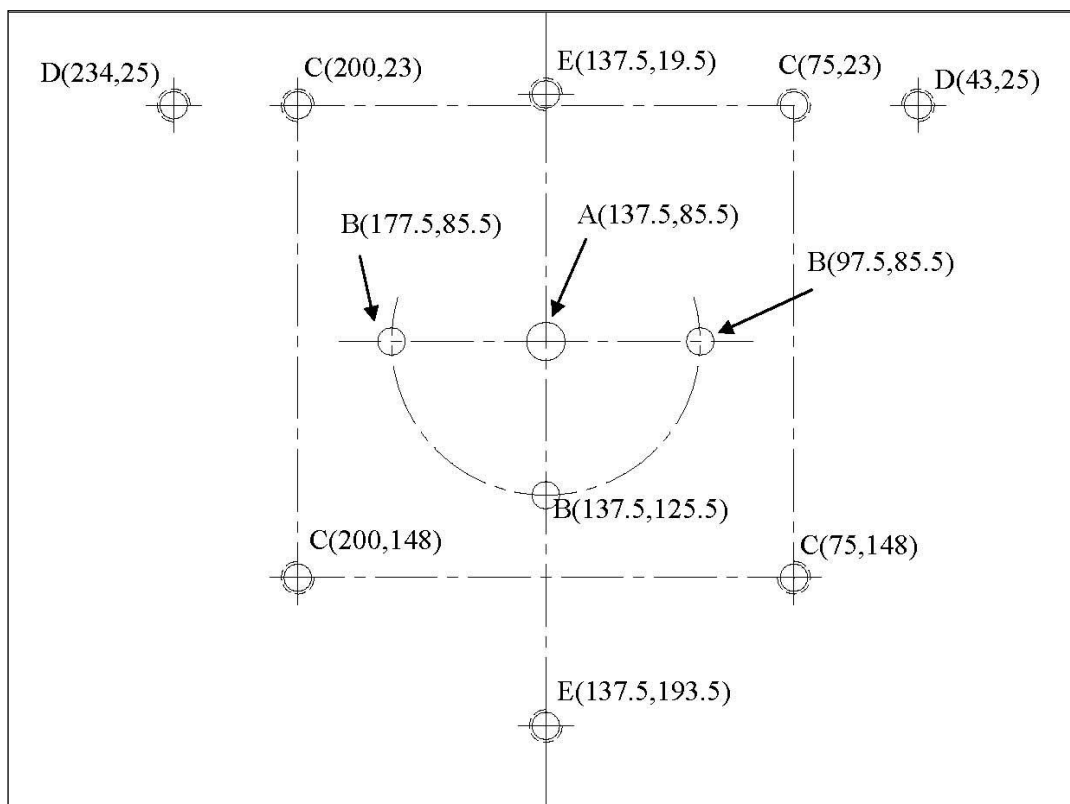


Orientation Options

MACHINED HOLE SIZES

- A. Alignment hole 3/8" dia.
- B. Alignment set pin holes 1/4" dia.
- C. Screw-holes for table mount & wall mount 5/16"-18UNC
- D. Knob for wall bracket 5/16"-18UNC
- E. : Screw-holes for stand-mount or mounting bracket 5/16"-18UNC

Device Back



Device Front

HOW TO REPLACE THE TRACTION CABLE

Traction cable should be non-conductive. Minimum cable strength 700 lbs. (320kgs/ 3200N).

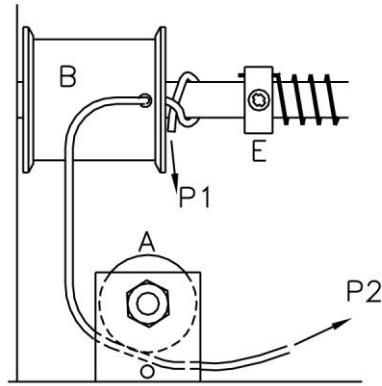


Fig 1

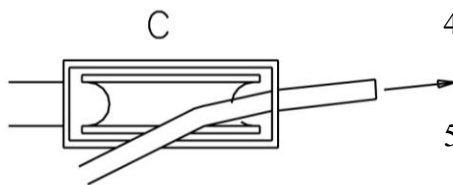


Fig 2

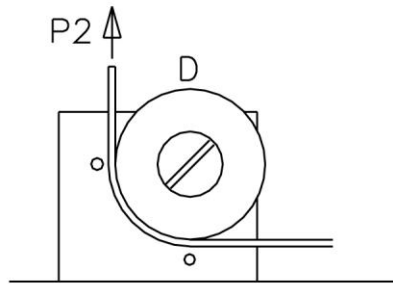


Fig 3

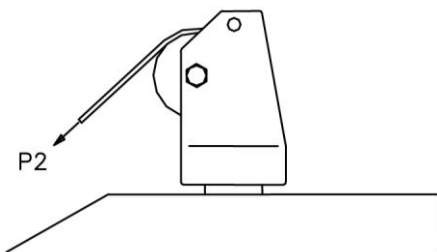


Fig 4

1. Loosen the screw E. (Fig 1)
2. Pass the cable around pulley A. (Fig 1)
3. Thread the cable through the hole of pulley B, go around the main shaft and under cable; pull cable tight to secure the end of cable against the main shaft. (Fig 1)
4. Pass side P2 of cable to pulley C. (Fig 2)
5. Then pass pulley D. (Fig 3)
6. Go around head pulley. (Fig 4)
7. Tie the hook with cable as shown in Fig 5 – 7.
8. En-circle the cable on pulley B.
9. Turn pulley B until the keyway faces you. (Fig 8)
10. Turning the rotary spring about 2 cycles by reversing cable direction then lock screw E.

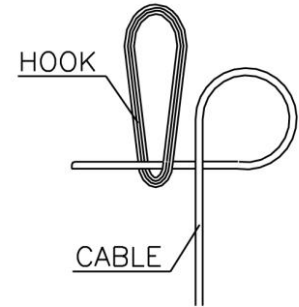


Fig 5

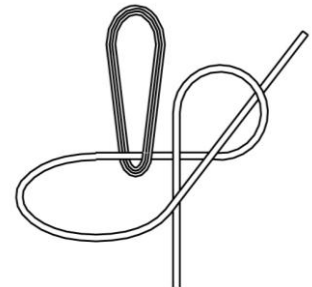


Fig 6

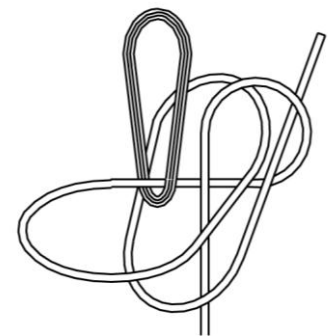


Fig 7

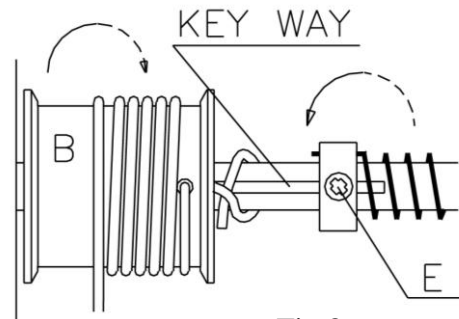


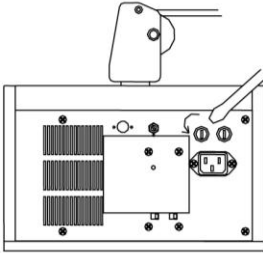
Fig 8

HOW TO REPLACE FUSES

Fuse 250V / 1.6A (100-120V)

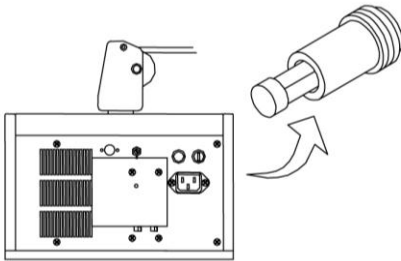
STEP 1:

Turning counter clockwise, use a screwdriver to remove the fuse case cover.



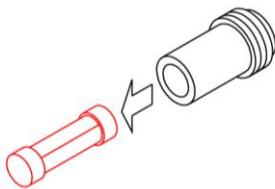
STEP 2:

Remove the fuse and fuse case.



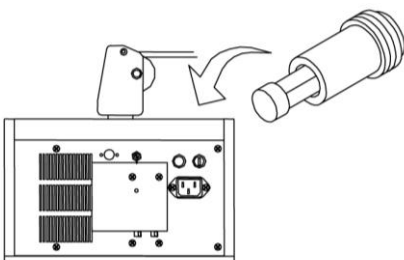
STEP 3:

Remove the used fuse from the fuse case. Insert the new fuse.



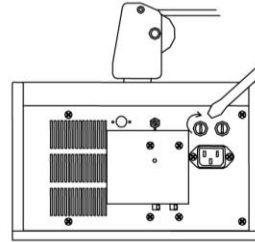
STEP 4:

Insert the fuse case into the fuse holder.



STEP 5:

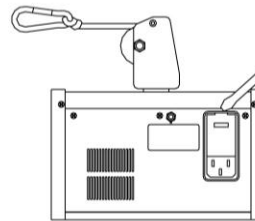
Turning clockwise, use a screwdriver to reattach the fuse cover.



FUSE 250V / 0.8A (220-240V)

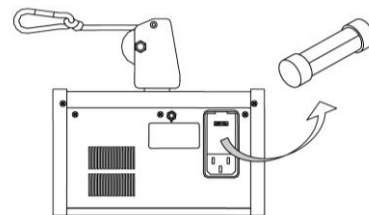
STEP 1:

Turning counter clockwise, use a screwdriver to remove the fuse case cover.



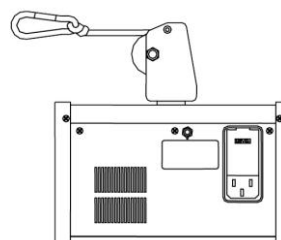
STEP 2:

Remove the fuse and fuse case. Remove the used fuse from the fuse case. Insert the new fuse.



STEP 3:

Insert the fuse case into the fuse holder. Turning clockwise, reattach the fuse cover.



DEFINITION OF SYMBOLS AND LABELING



Some or all of the following symbols are included in the labeling for this device. Definitions accompany each symbol.



Please read the Operations Manual Carefully before using this device.






Electrical Safety – Class 1 / Type BF

Type: DYNATRON 900 +
SN-XXXXXXXXX  20XX-XX Fuse: F 250V (2x), 1.6A
Supply: Max.150VA, 1.2 A
Voltage:120V ~ 50/60Hz
Manufactured for
Dynatronics Corporation
7030 Park Centre Drive, Salt Lake City, UT 84121
Electrical Safety - Class I / Type BF 

Remote Stop

Please read the operations manual carefully before using this device.

Manufacturer's ID Label / 120V

Type: DYNATRON 900 +
SN-XXXXXXXXX  20XX-XX Fuse: F 250V (2x), 0.8A
Supply: Max.150VA, 0.6 A
Voltage:220V ~ 50/60Hz
 Ever Prosperous Instrument, Inc.
4F,No.2/4F,No.4,Alley 59,Lane 42 Ming-Chuan Road Hsin-Tien,Taipei, Taiwan.
Manufactured for Dynatronics Corp.
EC REP
Electrical Safety - Class I / Type BF 

Remote Stop

Please read the operations manual carefully before using this device.

CE 0197

Manufacturer's ID Label / 220V

ELECTROMAGNETIC EMISSIONS AND IMMUNITY

Tables 1 through 4 below list the Dynatron 900+ declarations of electromagnetic emissions and immunity, and give user guidance on the Dynatron 900+ in an electromagnetic environment per IEC 60601-1-2 guidelines.

Table 1

Guidance and Manufacturer's Declaration - Electromagnetic Emissions		
The Dynatron 900+ (and accessories) is intended for use in the electromagnetic environment specified below. The customer or the user of the Dynatron 900+ (and accessories) should assure that it is used in such an environment.		
Emissions Test	Compliance	Electromagnetic Environment Guidance
RF emissions CISPR 11 EN55011	Group 1	The Dynatron 900+ (and accessories) uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment
RF emissions CISPR 11 EN55011	Class A	The Dynatron 900+ (and accessories) is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Table 2

Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
The Dynatron 900+ (and accessories) is intended for use in the electromagnetic environment specified below. The customer or the user of the Dynatron 900+ (and accessories) should assure that it is used in such an environment.			
Emissions Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
Electrostatic discharge (ESD) IEC 61000-4-2	+/- 6 kV contact +/- 8 kV air	Compliant	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	+/- 2 kV for power supply line +/- 1 kV input/output lines	Compliant	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	+/- 1 kV differential mode +/- 2 kV common mode	Compliant	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_t (>95 % dip in U_t for 0,5 cycle 40 % U_t (60 % dip in U_t for 5 cycles 70 % U_t (30 % dip in U_t for 25 cycles <5 % U_t (>95 % dip in U_t for 5 seconds	Compliant	Mains power quality should be that of a typical commercial or hospital environment. If the user of the equipment requires continued operation during power mains interruptions, it is recommended that the equipment be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	Not applicable	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE: U_t is the a.c. mains voltage prior to application of the test level.			

Table 3


Guidance and Manufacturer's Declaration - Electromagnetic Immunity			
The Dynatron 900+ (and accessories) is intended for use in the electromagnetic environment specified below. The customer or the user of the Dynatron 900+ (and accessories) should assure that it is used in such an environment.			
Immunity Test	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidance
<p>Conducted RF IEC 61000-4-6</p> <p>Radiated RF IEC 610000-4-3</p>	<p>3 Vrms 150 KHz to 80 MHz</p> <p>3 V/m 80 MHz to 2.5 GHz</p>	<p>3V</p> <p>3V/m</p>	<p>Portable and mobile RF communications equipment should be used no closer to any part of the Dynatron 900+ (and accessories), including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter.</p> <p>Recommended separation distance</p> $d = 1.17 \times \sqrt{P} \text{ 80 MHz to 800 MHz}$ $d = 2.33 \times \sqrt{P} \text{ 800 MHz to 2.5 GHz}$ <p>where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m).</p> <p>Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE 1: At 80 MHz and 800 MHz, the higher frequency range applies.</p> <p>NOTE 2: These guidelines may not apply to all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>			
<p>a. Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the Dynatron 900+ (and accessories) is used exceeds the applicable RF compliance level above, the Dynatron 900+ (and accessories) should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the Dynatron 900+ (and accessories).</p> <p>b. Over the frequency range 150 KHz to 80 MHz, field strengths should be less than 3 V/m.</p>			

Table 4

Recommended separation distance between portable and mobile RF communications equipment and the Dynatron 900+ (and accessories)			
The Dynatron 900+ (and accessories) is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the Dynatron 900+ (and accessories) can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the Dynatron 900+ (and accessories) as recommended below, according to the maximum power of the communications equipment.			
Rated maximum output power of transmitter W	Separation distance (meters) according to frequency of transmitter		
	150 kHz to 80 MHz $d = 1.17 \times \sqrt{P}$	80 MHz to 800 MHz $d = 1.17 \times \sqrt{P}$	800 MHz to 2.5 GHz $d = 2.33 \times \sqrt{P}$
0.01	0.12	0.12	0.23
0.1	0.37	0.37	0.74
1	1.2	1.2	2.3
10	3.7	3.7	7.4
100	12	12	23
For transmitters at a maximum output power listed above, the recommended separation distance (<i>d</i>) in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.			
NOTE 1: At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.			
NOTE 2: These guidelines may not apply to all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.			

ADDITIONAL TECHNICAL INFORMATION AVAILABLE (FOR TECHNICIANS ONLY)

Dynatronics will make available on request circuit block diagrams, component part lists, descriptions, calibration instructions or other information which will assist the user's appropriately qualified technical personnel to repair those parts of the equipment which are designated by Dynatronics as repairable and which will not violate protection of Dynatronics' proprietary information..

DYNATRON 900⁺™

LIMITED WARRANTY

Dynatronics CORPORATION warrants the Dynatron 900+, to be free from factory defects in materials and workmanship under normal use for ONE YEAR from the date of purchase by the original owner. If this product is defective within the warranty period, Dynatronics will, subject to the conditions set forth below:

- (1) repair or replace defective parts at no charge within a reasonable period of time with new or remanufactured parts, at Dynatronics' option; and
- (2) provide labor for the repair or replacement of defective parts under this warranty without charge.

Parts used for replacement under this warranty are warranted for the remainder of the original warranty period. THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS SHALL CONSTITUTE THE SOLE AND EXCLUSIVE REMEDY IN THE EVENT OF A BREACH OF WARRANTY.

REGISTRATION REQUIRED. In order for this warranty to be valid, the warranty registration card (included with the product) must be filled out and returned to Dynatronics within 30 days of purchase by the original owner. A copy of an invoice or receipt may be requested to verify purchase date.

REPAIRS. All repairs must be performed by an authorized service facility. Any modifications or repairs by unauthorized parties will void this warranty.

OBTAINING WARRANTY SERVICE. Authorization by Dynatronics is required before obtaining service under this warranty. Therefore, before shipping or delivering this product to an authorized service facility for warranty service, call Dynatronics and obtain a return authorization number.

PACKAGING AND SHIPPING. Any device shipped to an authorized service facility for service under this warranty must be in the original shipping carton, freight prepaid, fully insured, and properly packed to prevent damage. Dynatronics is not liable for any damage to the device while in transit. Include a summary of the problem with the product. Write the return authorization number obtained from Dynatronics on the shipping label.

SHIPPING COSTS. Within the first 30 days of the warranty period, Dynatronics will pay all necessary shipping costs associated with obtaining service under this warranty. After the first 30 days of the warranty period, the owner is responsible for all costs associated with shipping the product to an authorized service facility. Dynatronics will pay all costs associated with shipping the product back to the owner after service is completed, and will ship the product using the same carrier or type of carrier and service that was used by the owner for the incoming shipment.

EXCLUSIONS. Any defect, malfunction or failure caused by or resulting from improper installation, service, maintenance or repair, or from abuse, neglect, transportation, accident, act of God, or other cause beyond the control of Dynatronics will not be covered by this limited warranty. ANY IMPLIED WARRANTIES COVERING THIS PRODUCT, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF PURCHASE BY THE ORIGINAL OWNER. Dynatronics SHALL NOT IN ANY CASE BE LIABLE FOR SPECIAL, INCIDENTAL, CONSEQUENTIAL, INDIRECT, OR OTHER SIMILAR DAMAGES ARISING FROM BREACH OF WARRANTY, BREACH OF CONTRACT, NEGLIGENCE, OR ANY OTHER LEGAL THEORY EVEN IF Dynatronics HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

For more information concerning repairs, operation, or technical assistance, please contact the Dynatronics dealer nearest you, or contact Dynatronics directly at: the address below.

Dynatronics Corporation

7030 Park Centre Drive • Salt Lake City, Utah 84121 • (801) 568-7000 (800) 874-6251

DYNATRONICS 900+™ WARRANTY REGISTRATION

TO REGISTER THE WARRANTY FOR YOUR DYNATRONICS UNIT, REMOVE THIS SELF-MAILER PAGE, COMPLETE ALL INFORMATION REQUESTED, AND MAIL TO DYNATRONICS.

PLEASE TYPE OR PRINT PLAINLY:

<i>Please Type or Print Plainly</i>					
Purchase Information:					
Purchase Date		Model Number		Serial Number	
Practitioner / Contact Name					
Clinic or Institution					
Address					
City		State		Zip	
Dynatronics' Sales Representative					

☐ I have read and understand the information contained in the operator's manual for this device.

☐ I have received in-service training from my dealer and/or Dynatronics for this device.

IMPORTANT: If there is anything about the operation or use of your Dynatron device that you do not understand, contact your dealer or Dynatronics for instruction. As a trained medical practitioner, you are solely responsible for determining appropriate application of this device for your patients.

BEFORE RETURNING A UNIT TO DYNATRONICS FOR SERVICE, YOU MUST OBTAIN A RETURN AUTHORIZATION NUMBER. CALL 1-800-874-6251.

-Failure to register the warranty may result in a delay in completion of services, and service will be billable.

